

Reporting viral load and CD4 counts is a critical first step in calculating community viral load—a key action step called for in the National HIV/AIDS Strategy.¹ In August 2011, the Centers for Disease Control and Prevention (CDC)² released *Guidance on Community Viral Load: Measures, Definitions, and Methods for Calculation* to describe the concept of community viral load and provide definitions of and methods for calculating community viral load and related measures. The Guidance proposes common language for viral load (VL) measurements, which include four measures of viral load for an HIV-infected population. The HIV-infected population can be described by five component measures, depending on what information is available on the level of care, viral load, and diagnosis.

The following table shows the four VL measures and their corresponding population component measures:

| | Component Measures | | | | |
|------------------------------|------------------------------|----------------------------|-----------------|---------------------------|-------------|
| Population Viral Load | In care with undetectable VL | In care with detectable VL | In care, no VL* | Diagnosed but not in care | Undiagnosed |
| Community Viral Load | In care with undetectable VL | In care with detectable VL | In care, no VL | Diagnosed but not in care | |
| In-Care Viral Load | In care with undetectable VL | In care with detectable VL | In care, no VL | | |
| Monitored Viral Load | In care with undetectable VL | In care with detectable VL | | | |

*No VL = missing/unknown, for a variety of reasons (e.g., incomplete reporting).

Estimating Measures of Viral Load

- **Population Viral Load:** This is the most comprehensive measure; however, it is a conceptual measure, which cannot be directly calculated.
- **Community Viral Load:** At this time, calculation is not feasible for most jurisdictions. For jurisdictions to be able to estimate this measure, they would need to address missing VL data among residents with an HIV diagnosis or obtain data by increasing testing and maximizing linkage to, and retention in, care. Imputing data for diagnosed cases with missing VL data would require supplemental data that are not available in most areas. Valid information on current address is required for residents with an HIV diagnosis to ensure that persons no longer residing in the area are excluded from the analysis.
- **In-Care Viral Load:** At this time, calculation is not feasible for most jurisdictions. For jurisdictions to be able to estimate this measure, they would need to address missing VL data to maximize the proportion of persons in care who have VL data in the HIV surveillance system. Imputing data for diagnosed cases with missing VL data would require supplemental data, such as antiretroviral therapy data, that are not available in most jurisdictions.
- **Monitored Viral Load:** Most jurisdictions can calculate this measure for residents with an HIV diagnosis.

Additionally, standardized categorical measures have been defined and can be used to assess the quality of HIV care or the possible transmission potential for the HIV-infected population that is receiving care:

- Suppressed/not suppressed (where ≤ 200 copies/mL is suppressed and > 200 copies/mL is not suppressed)
- Undetectable VL (≤ 50 copies/mL)
- High VL ($> 100,000$ copies/mL)

Ability of Surveillance Programs to Calculate Viral Load Measures

Using viral load measures to monitor HIV burden and treatment outcomes does not rest solely with the HIV surveillance system; rather, taking steps to ensure that these measures can be calculated is a function of policy, care and treatment (practice), and surveillance.

1. National HIV/AIDS Strategy. <http://www.aids.gov/federal-resources/policies/national-hiv-aids-strategy>. Accessed January 30, 2012.

2. Centers for Disease Control and Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, Division of HIV/AIDS Prevention, HIV Incidence and Case Surveillance Branch.

Policy

- HIV treatment guidelines (when/how often VL test recommended).
- Reporting policies for laboratory tests, which vary by jurisdiction.
- Sharing of surveillance data within and across jurisdictions.
- Reporting of data to surveillance programs (private and federal facilities and institutions).

Practice

- Practice of requesting VL tests (health care providers).
- Practice of reporting VL data (laboratories).
- Reach of HIV testing and linkage to care programs.

Surveillance

- Entering/uploading of laboratory reports.
- Ascertainment of deaths.
- De-duplication of records—both intrastate and interstate.
- Assessment of missing data.

What increases a surveillance program's ability to estimate viral load?

- Having a policy in place that requires reporting of all VL test results to the HIV surveillance program.
- Having access to all HIV surveillance data on a well-defined population.
- Using common definitions of VL measures.
- Having complete and accurate surveillance and health data.
- Retaining high HIV testing rates.
- Sustaining high linkage to, and retention in, care rates.
- Maintaining high level of collaboration across, and the functional effectiveness of, policy, care and treatment, and surveillance.
- Fostering strong relationship with laboratories, particularly regarding the inflow of data, and promoting policies for reporting VLs to surveillance systems.

Current Challenges in Calculating Viral Load Measures

- Some states do not have laws/regulations in place for laboratories to report all VL results.
- Some states do not have the technological or human-resource ability to enter/import all laboratory information into surveillance system (e.g., results reside on paper or in a supplementary database).
- Some laboratories in private or federal hospitals and clinics do not report HIV lab results to surveillance programs.
- Some states may not receive laboratory reports for a person who resides in the jurisdiction but receives care in another jurisdiction (e.g., resident of State A receives HIV care in State B; State B receives all lab results from clinic in State B, but those lab results are not reported to State A).
- Some HIV-infected persons are not engaged in ongoing care for their HIV disease.
- Completeness and accuracy of current address information is variable in some surveillance systems.

CDC Activities to Address Challenges in Calculating Viral Load Measures

- Supplemental HIV Surveillance Funding
 - Awarded supplemental funding (\$5.6 million in FY 2010 and \$7.2 million in FY 2011) to HIV surveillance jurisdictions to support the implementation and maintenance of electronic lab reporting for all HIV-related test results, as well as importing of results into the HIV surveillance database.
 - Awarded supplemental funding (~\$1 million in FY 2010 and ~\$1.2 million in FY 2011) to support jurisdictions for geocoding (determining associated geographic coordinates from geographic data such as street addresses or ZIP codes) of HIV surveillance data.
- In collaboration with the Health Resources and Services Administration, HIV/AIDS Bureau, sponsored a *Consultation on Monitoring and Use of Laboratory Data Reported to HIV Surveillance* in March 2011.
- In collaboration with state and local HIV programs, developed technical guidance on calculating VL measures and released guidance to HIV surveillance coordinators in August 2011.
- Developing SAS programs to assist state and local HIV surveillance programs with calculating VL measures; these are scheduled for release in early 2012.